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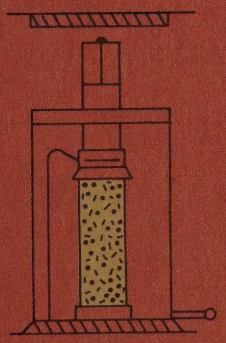
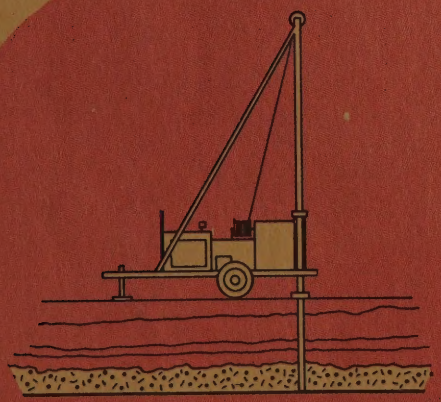
STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION

SOIL MECHANICS
BUREAU





REPORT OF TELEVISION BOREHOLE SURVEY OF WELL NUMBER 3
Iroquois Service Area
New York State Thruway

By
Francis R. Irving
Associate Engineering Geologist

SM 238a (1/69)

March 20, 1970

Mr. Belmont M. Williams
Chief Engineer
N.Y.S. Thruway Authority
P.O. Box 189
Albany, New York 12201

Dear Mr. Williams:

Project: Well Number 3
Iroquois-Indian Castle Service Area
Project No. E101254-071

Subject: Television Borehole Survey

In accordance with your request dated January 7, 1970, this Bureau has completed a survey of Well Number 3 with a television borehole camera.

The attached report, prepared by Francis R. Irving, Associate Engineering Geologist, summarizes our findings.

Very truly yours,

Wm. P. Hofmann, Director
Bureau of Soil Mechanics

by Richard H. Burns

Richard H. Burns
Associate Soils Engineer

RHB/bpa
Att.
cc: G. W. McAlpin

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March 20, 1970

Mr. Delmont R. Williams
Chief Engineer
N.Y.S. Thruway Authority
P.O. Box 189
Albany, New York 12201

Dear Mr. Williams:

Project: Well Number 3 Project: Tolavialem
Iroquois-Indian Guelle Service Area Boreholo Survey
Project No. 8L01254-071

In accordance with your request dated January 7, 1970, this Bureau has completed a survey of Well Number 3 with a television borehole camera.

The attached report, prepared by Francis R. Irving, Associate Engineering Geologist, summarizes our findings.

Very truly yours,

Wm. P. Dollman, Director
Bureau of Soil Mechanics

By _____
Richard H. Burns
Associate Civil Engineer

RHB/jm
Att.
cc: G. A. Meralgia

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Albany, New York 12232

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REPORT OF TELEVISION BOREHOLE SURVEY
OF WELL NUMBER 3
Iroquois-Indian Castle Service Area
of New York State Thruway

By
Francis R. Irving
Associate Engineering Geologist

REPORT OF TELEVISION RESEARCH SURVEY
OF WELL NUMBER 3
Iroquois-Indian Castle Service Area
of New York State Thruway

By
Francis R. Irving
Associate Engineering Geologist

FILE COPY

REPORT OF TELEVISION BOREHOLE SURVEY OF WELL NUMBER 3
Iroquois Service Area
New York State Thruway

A television inspection of Well Number 3 at the Iroquois-Indian Castle Service Area was conducted on February 17, 1970, by personnel from the Bureau of Soil Mechanics. The inspection was carried out at the request of Mr. Belmont Williams, Chief Engineer of the New York State Thruway Authority.

Well Number 3 is located at W.B. Centerline Station 3333+36, 88' left. The aquifer is a ten foot gravel layer lying between elevation 287 and 297.

Sand and silt size particles entering the well have caused excessive wear to two pumps so far. Pieces of the well screen, including the label, had been recovered during recent bailing operations. The borehole camera was used in an attempt to determine the condition of the well screen at present.

The recovered label identified the screen as being a Johnson Everdur 40 slot screen, ten feet long and eight inch in diameter (7.5 od, 6.36 id). Plate I shows an external view of a partially restored section of screen made from pieces recovered by the bailer. The vertical pieces were almost completely covered by a coating of sand grains cemented on by iron oxide. This coating covered the weld areas as well as the ends of the vertical pieces showing that they were not broken loose by the recent bailing operations, but must have lain on the bottom of the well for some time.

The damaged top of the screen is shown in Plates II & III. The brass collar and lead seal are both missing. They are probably in the bottom of the well screen, unless they were recovered in some previous bailing operation. Quite a bit of the horizontal "V" section bar was recovered by the bailer, however, there is approximately 16 feet of this "V" section bar to the inch of screen length. The T.V. inspection showed that the damaged area below the missing collar may be only four inches. There is 3.2 feet of screen at present between the damaged top as shown in Plate II and the bottom (lowest point to which the T.V. probe would penetrate). This means that there is probably 4.3+

REPORT OF TELEVISION INSPECTION SURVEY
OF WELL NUMBER 3
Iroquois Service Area
New York State Thruway

A television inspection of Well Number 3 at the Iroquois-Indian Castle Service Area was conducted on February 17, 1978, by personnel from the Bureau of Well Mechanics. The inspection was carried out at the request of Mr. Belmont Williams, Chief Engineer of the New York State Thruway Authority.

Well Number 3 is located at U.S. Centerline Station 3333+36, 86' left. The aquifer is a fine sand gravel layer lying between elevations 707 and 727.

Sand and silt size particles entering the well have caused excessive wear to the pumps so far. Pieces of the well screen, including the label, had been recovered during recent bailing operations. The borehole camera was used in an attempt to determine the condition of the well screen at present.

The recovered label identified the screen as being a Johnson Number 40 slot screen, ten feet long and eight inch in diameter (7.5 od, 6.35 id). Plate I shows an external view of a partially restored section of screen made from pieces recovered by the bailer. The vertical pieces were almost completely covered by a coating of sand grains cemented on by iron oxide. This coating covered the weld areas as well as the ends of the vertical pieces showing that they were not broken loose by the recent bailing operations, but must have lain on the bottom of the well for some time.

The damaged top of the screen is shown in Plates II & III. The brass collar and lead seal are both missing. They are probably in the bottom of the well screen, unless they were recovered in some previous bailing operation. Quite a bit of the horizontal "V" section bar was recovered by the bailer, however, there is approximately 16 feet of this "V" section bar to the inch of screen length. The T.V. inspection showed that the damaged area below the missing collar may be only four inches. There is 3.7 feet of screen at present between the damaged top as shown in Plate II and the bottom (lowest point to which the T.V. probe would penetrate). This means that there is probably 4.5'

feet of screen completely filled with sediments, rust and pieces of the top of the well screen. Since the aquifer is only ten feet thick, probably no more than eight feet of the original screen was exposed beneath the casing.

Plates IV & V show the material recovered by the bailer separated according to that passing or being retained by the No. 14 sieve. The coarser material consists mainly of rust particles from the casing. There are a few pieces of sandstone and crystalines too coarse to be passed by the well screen. They may have entered the well between the casing and the screen since the seal is no longer present. Figures 1 and 2 show the grain size analysis of the samples taken by the bailer and from the softening wier respectively. Over 90% by weight of the material in both samples could pass a No. 40 well screen. Over 90% of the remaining material is rust particles from inside the casing.

There were also two pieces larger than 1/4", the larger one being 1.5 in. x 2 in. These pieces were reportedly recovered by the bailer in the latest cleaning operation. The T.V. examination did not disclose any openings large enough to permit passage of pieces this large. They may have entered the well accidently from the top or there may be more extensive damage to the screen below the area that could be examined by the radial view T.V. camera.

The static water level in the well at the time of the survey was 102.5 feet below the top of the casing.

Francis R. Irving

Francis R. Irving
Associate Engineering Geologist

feet of screen completely filled with sediments, rust and pieces of the top of the *well* screen. Since the aquifer is only ten feet thick, probably no more than eight feet of the original screen was exposed beneath the casing.

Plates IV & V show the material recovered by the bailer separated according to size passing or being retained by the No. 14 sieve. The coarser material consists mainly of rust particles from the casing. There are a few pieces of sandstone and crystalline too coarse to be passed by the *well* screen. They may have entered the *well* between the casing and the screen since the seal is no longer present. Figures 1 and 2 show the grain size analysis of the samples taken by the bailer and from the softening valve respectively. Over 90% by weight of the material in both samples could pass a No. 40 *well* screen. Over 90% of the remaining material is rust particles from inside the casing.

There were also two pieces larger than 1/4", the larger one being 1.3 in. x 1 in. These pieces were reportedly recovered by the bailer in the latest cleaning operation. The T.V. examination did not disclose any openings large enough to permit passage of pieces this large. They may have entered the *well* accidently from the top or there may be more extensive damage to the screen below the area that could be examined by the radial vlew T.V. camera.

The static water level in the *well* at the time of the survey was 182.5 feet below the top of the casing.

Francis R. Irving

Francis R. Irving
Associate Engineering Geologist

Plate I Enlargement of reconstructed segment of 40 slot Johnson well screen (exterior view).

These pieces were recovered by the bailer at Well No. 3 at Iroquois Service Area. The encrustations visible at the uncleaned ends of the vertical struts are sand grains cemented on by iron oxide. The fact that they coat the weld areas and ends of the vertical pieces shows that these pieces were not broken loose by the last bailing operation

Plate II View showing damage at top of well screen. Continuation of Plate IV.

The two pieces in the upper left are vertical members which have been bent over. The wide spots on the horizontal member that winds across the center of the picture are weld marks. The brass collar to which the vertical members were attached and the lead seal are apparently missing.

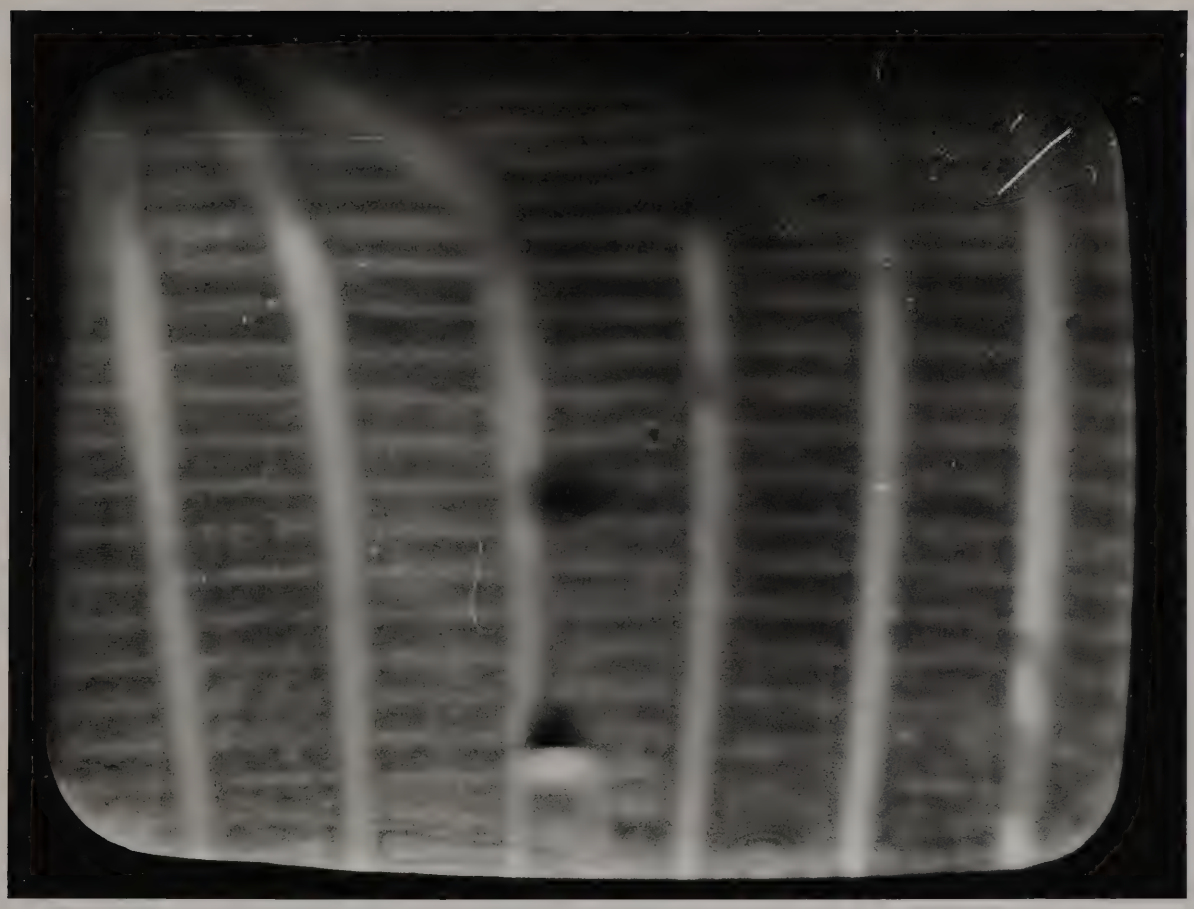


Plate III View showing well screen at base of damaged area.

The section of the screen that could be examined with the radial view T.V. probe showed no damage below this point.

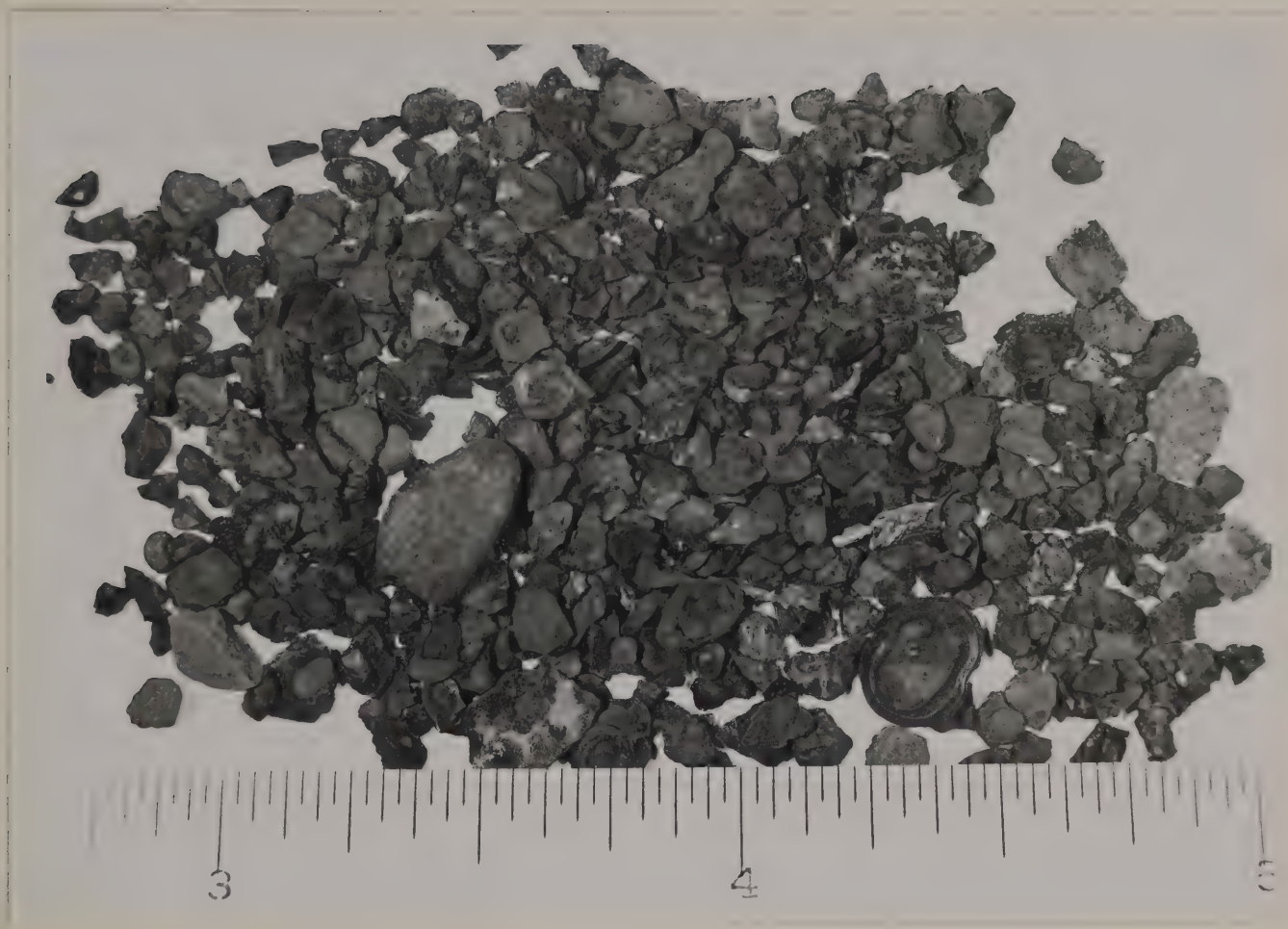


Plate IV Enlarged view of material retained by No. 14 sieve. Sample taken by bailer.

Most of the material shown is iron oxide. The 3/8 in. pebble in the lower left is sandstone.

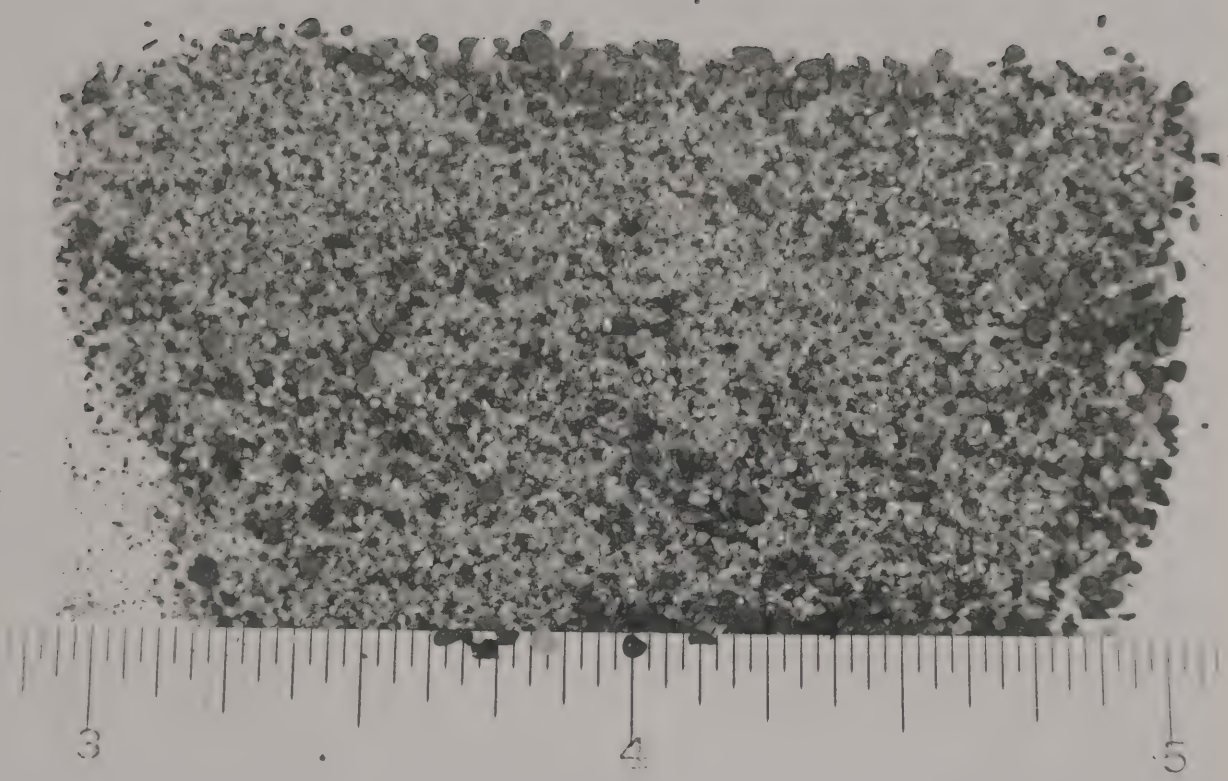
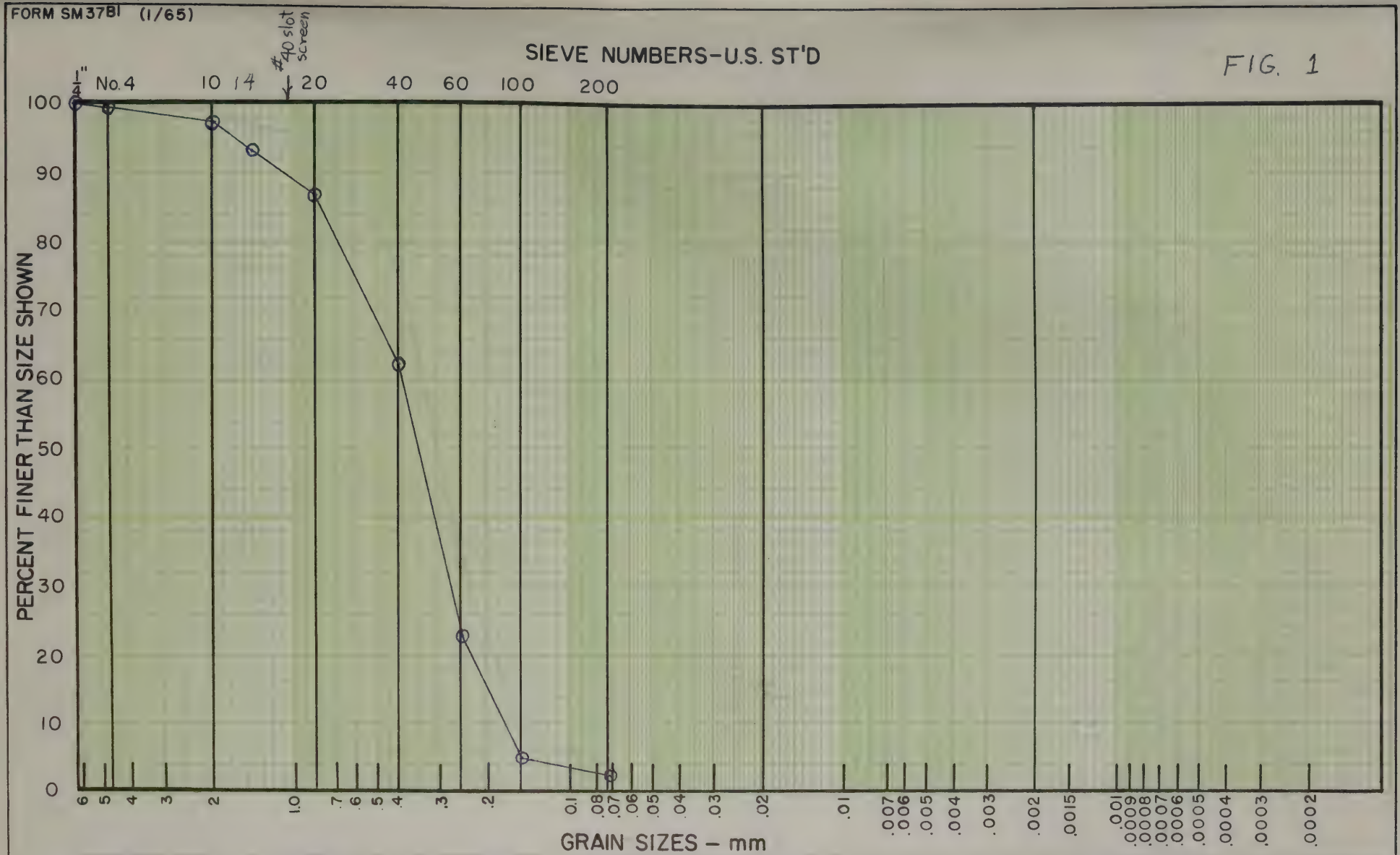


Plate V Enlarged view of material that passes the No. 14 sieve. Sample taken by bailer.

FORM SM378I (1/65)

FIG. 1



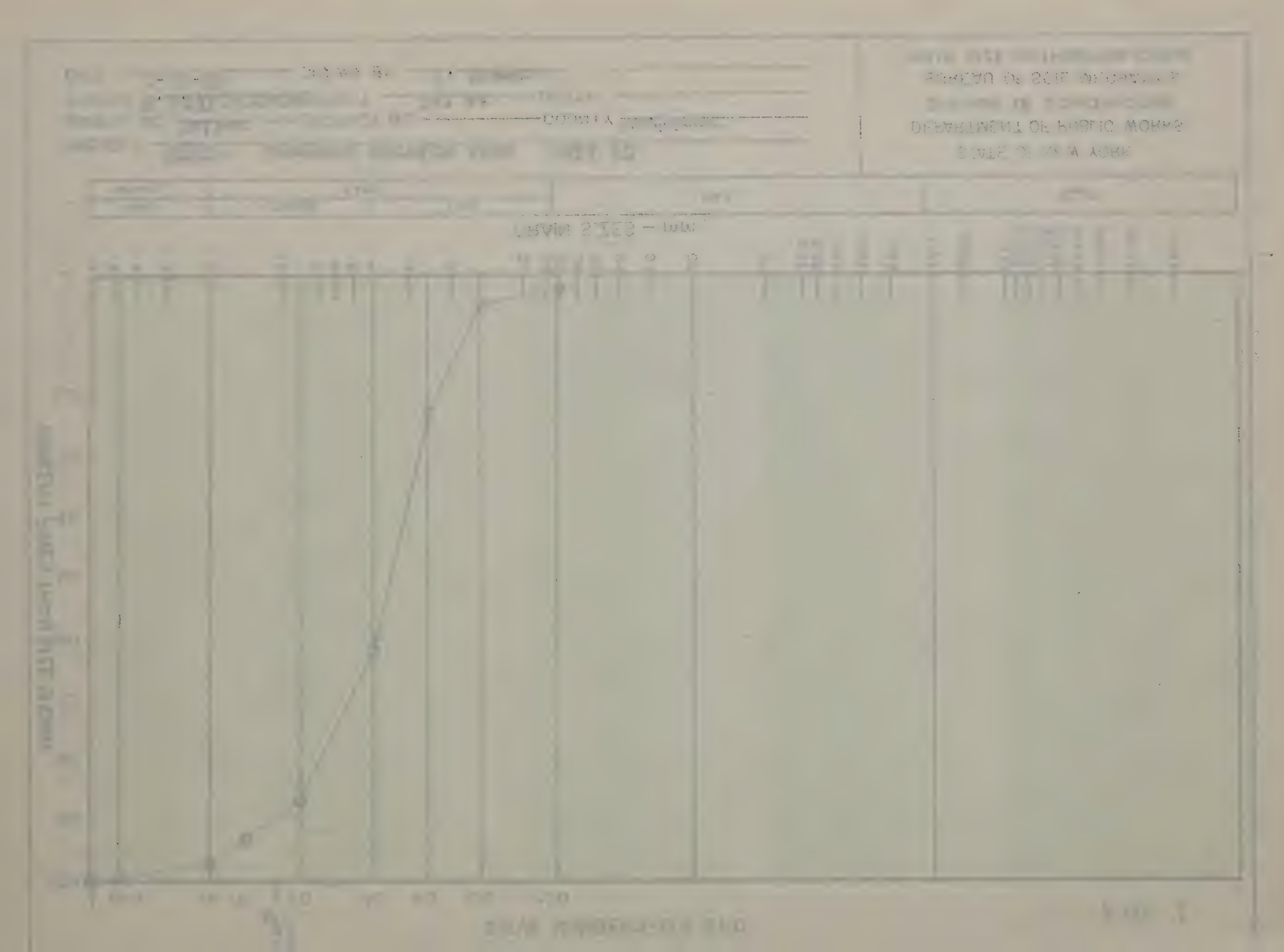
PROJECT NYSTA Iroquois Service Area Well #3

SAMPLE NO. Bailer DISTRICT NO. _____ COUNTY Herkimer

STATION W.B.C/L3333+36 OFFSET 88' Lt DEPTH _____

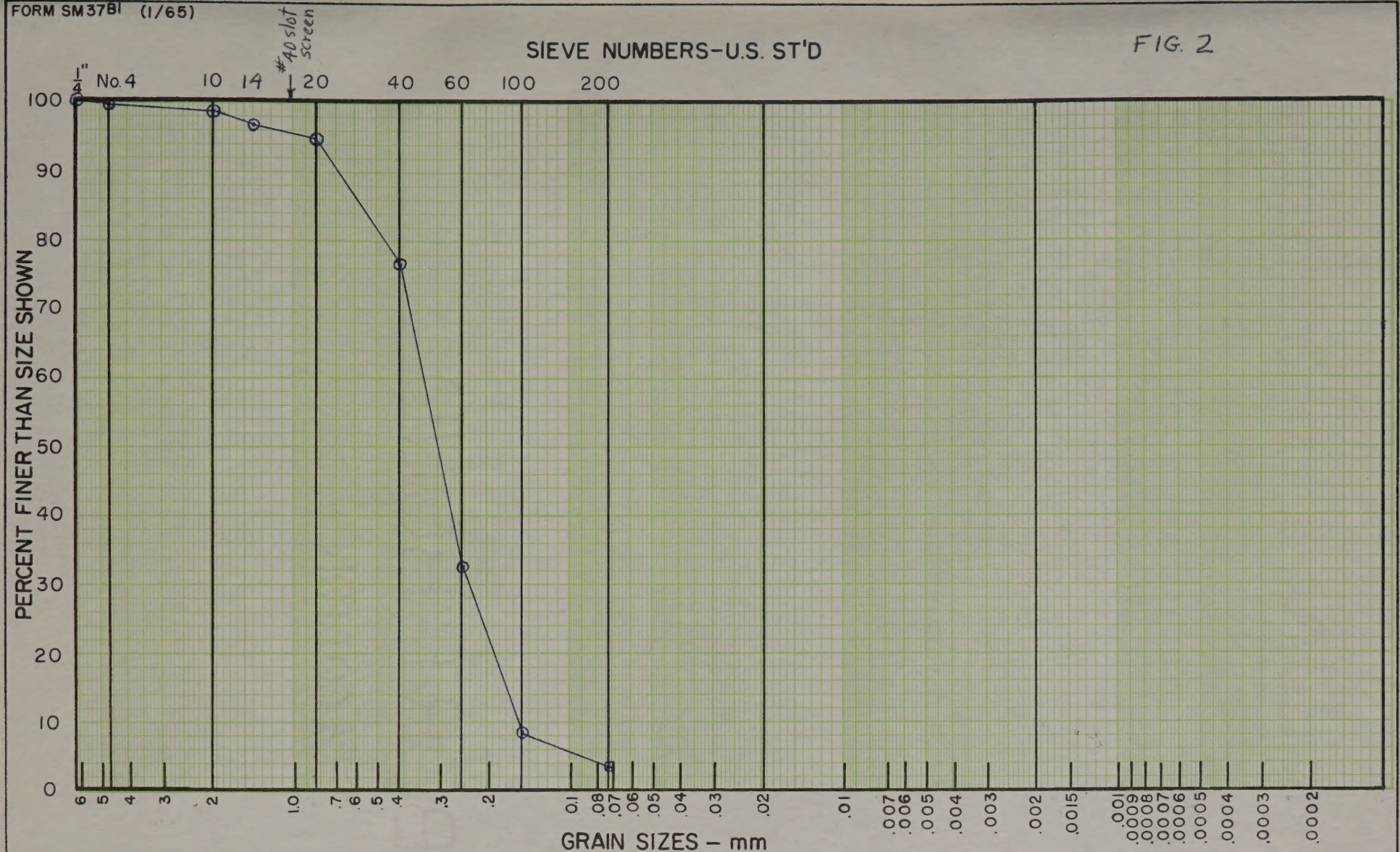
DATE 2-24-70 DRAWN BY F. Sager

STATE OF NEW YORK
DEPARTMENT OF PUBLIC WORKS
DIVISION OF CONSTRUCTION
BUREAU OF SOIL MECHANICS
GRAIN SIZE DISTRIBUTION CURVE



FORM SM37BI (1/65)

FIG. 2



PROJECT NYSTA Iroquois Service Area Well #3

SAMPLE NO. Softener DISTRICT NO. ____ COUNTY Herkimer

STATION W.B.C/L3333+36 OFFSET 88' Lt DEPTH ____

DATE 2-24-70 DRAWN BY F. Sager

STATE OF NEW YORK
DEPARTMENT OF PUBLIC WORKS
DIVISION OF CONSTRUCTION
BUREAU OF SOIL MECHANICS
GRAIN SIZE DISTRIBUTION CURVE

DATE _____ DRAWN BY _____

STATION _____ OFFSET _____ DEPTH _____

SAMPLE NO _____ DISTRICT NO _____ COUNTY _____

PROJECT _____

DEPARTMENT OF PUBLIC WORKS
STATE OF NEW YORK
DIVISION OF CONSTRUCTION
BUREAU OF SOIL MECHANICS
GRAIN SIZE DISTRIBUTION CURVE

GRAVEL	SAND		SILT	CLAY
FINE	COARSE	FINE		

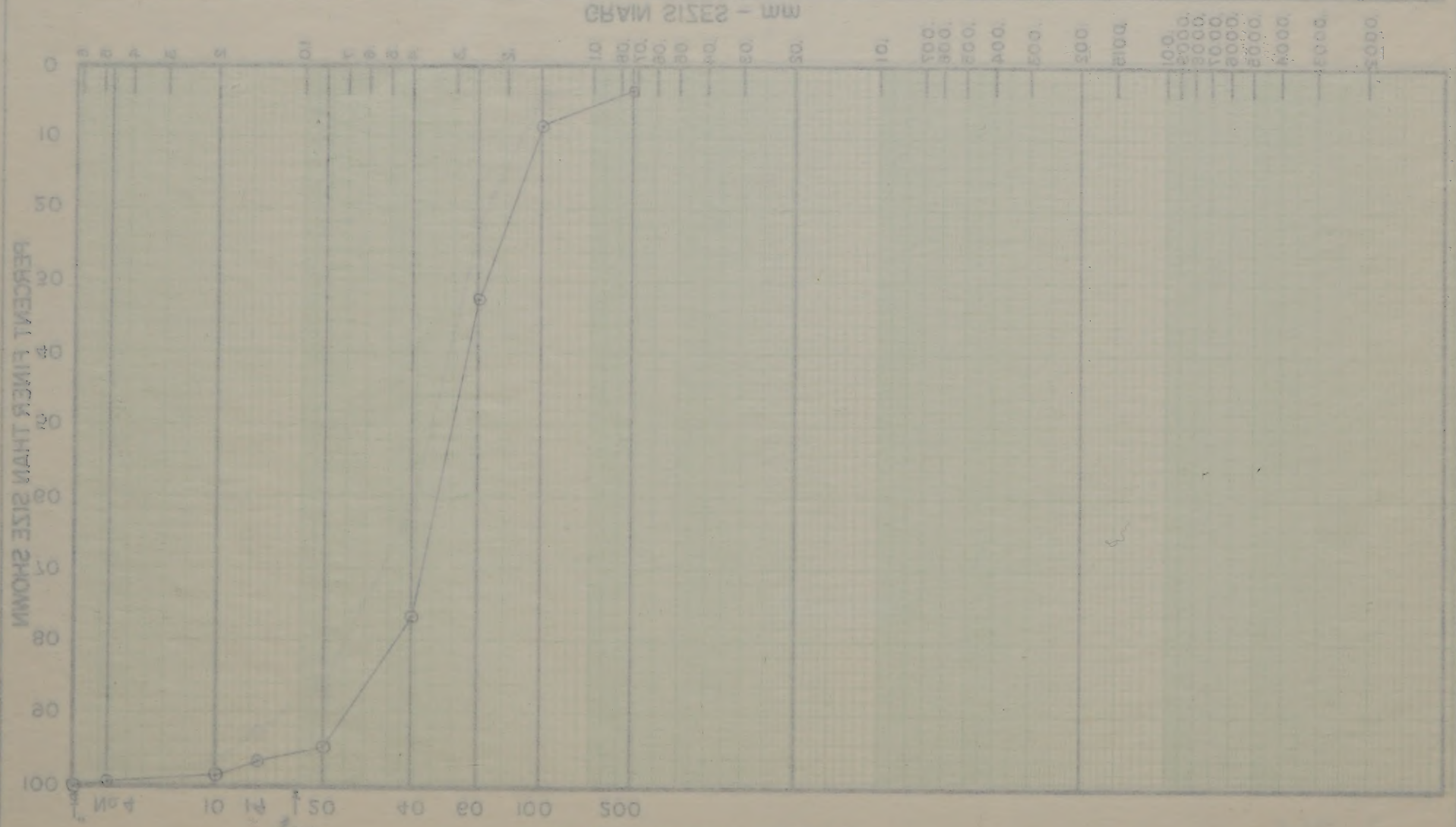


FIG 2

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